

DEVELOPMENT OF TOOLS FOR CHILDREN'S RISK ASSESSMENT BASED UPON LIFE-STAGE SPECIFIC EXPOSURE

Presenter: Gary Bangs (NCEA) /Co-authors: Elaine Cohen-Hubal (NERL), Michael Firestone (OCHP), Jacqueline Moya (NCEA), Valerie Zartarian (NERL).

Issue: What critical information is needed to fully define exposure and contributors to exposure, in order to conduct exposure and risk assessments for children?

NCEA's Scientific Response to Children's Exposure Differences



Internal and external scientific workshops on specific exposure factors

Products:

- Child-specific Exposure Factors Handbook
- Extramural research where data gaps exist

Goals

- Update the *Child-Specific Exposure Factors Handbook* by 2006 & the *Exposure Factors Handbook* by 2007
- Provide yearly updates to the Guide to Current Literature on the Exposure Factors Program Homepage
- Provide companion documents to the Handbooks
- Provide consultation services to clients

First Steps to Achieve Goals

- Established an Exposure Factors team
- Established an Agency-wide Exposure Factors Workgroup

High Priority Areas Identified by Workgroup in Fall 2004

Colloquium

Soil ingestion for adults and children

- Mouthing behavior data
- Defining high-end populations
 - Farm families
 - Native Americans
 - Other sustenance populations (e.g., subsistence fishermen)
- Develop guidance on the use of fish consumption data
- Developing longitudinal data and methods

Current Activities

- Soil ingestion/mouthing behavior workshop to be held in May, 2005
- Development of a Pesticides Exposure Factors Handbook by 2006
- Work assignments in progress to update Child-Specific EFH and EFH
- New work assignment to develop a Fish Consumption Assessment Guidance
- New work assignment on development of inhalation rates using latest data from USDA for the derivation of energy expenditures
- Conducting research on correlations among food consumption factors
- Completing reports on:
 - fat intake and composition of individual's diet
 - fish consumption for the Tulalip and Squaxin tribes
 - reanalysis of four state fish consumption surveys
 - soil ingestion based on arsenic in urine data

How will NCEA keep the Handbook up-to-date?

Updates will be provided via Internet as new data are available:
<http://cfpub.epa.gov/ncea/cfm/efprog.cfm>



EPA Risk Assessment Forum sponsored external peer workshop and peer reviews

Product:

Guidance on Selection of Age Groups for Monitoring and Estimating Exposure of Children to Environmental Contaminants

Differences Between Children and Adults- Anatomy - Physiology - Behavior

Goal of Age Groups Guidance

- Provide a recommended starting point for EPA scientists to consider when assessing children's exposure to environmental contaminants and the resultant potential dose.
- Generating the Technical Basis for Guidance – Use of Peer Involvement



Risk Assessment Forum's Internal / External Workgroup on Age Groups for Exposure Assessment

- Workshop held in July 2000: Workshop on Issues Associated with Considering Developmental Changes in Behavior and Anatomy when Assessing Exposure to Children
- Workshop participants included national experts in the fields of pediatric medicine, toxicology, risk assessment, and public health.
- Participants were divided into two subgroups:
 - behavioral development
 - physiology and anatomical growth
- Workshop report - <http://cfpub.epa.gov/ncea/raf/wrkshops.cfm>

Result: Age Groups for Monitoring and Estimating Children's Exposure
<http://cfpub.epa.gov/ncea/cfm/recorddisplay.cfm?deid=55887>

Age Groups < 1 Year



birth to < 1 month
 1 to < 3 months
 3 to < 6 months
 6 to < 12 months

Age Groups > 1 Year

1 to < 2 years
 2 to < 3 years
 3 to < 6 years
 6 to < 11 years
 11 to < 16 years
 16 to < 18 years
 18 to < 21 years

2004 External Peer Review of Age Groups for Children's Exposure: Conclusions and recommendations

- Consensus on recommended groups
- EPA should consider how to address prenatal and perinatal age groups
- EPA should look at age groups among older adults and females of child bearing age
- Exemplify how different exposure scenarios and data availability may suggest combining or splitting recommended age groups



epascienceforum
 Collaborative Science
 for Environmental Solutions



2005
epa.gov/scienceforum